

**MEMORIAL RESOLUTION OF THE FACULTY
OF THE UNIVERSITY OF WISCONSIN-MADISON**

ON THE DEATH OF PROFESSOR EMERITUS ROBERT H. BURRIS

Robert Harza Burris, professor emeritus of biochemistry at the University of Wisconsin-Madison, died on May 11, 2010 at the age of 96.

Professor Burris was born on April 13, 1914 in Brookings, South Dakota. He earned the bachelor of science degree in chemistry at South Dakota State College in 1936. He was invited to the University of Wisconsin-Madison for graduate studies in the laboratory of Professor Perry Wilson in the Department of Bacteriology. His thesis work involved the study of biological nitrogen fixation — the process by which organisms convert nitrogen gas from the atmosphere into a form that can be incorporated into biological molecules such as proteins. He was awarded an M.S. in 1938 and a Ph.D. in 1940. He spent a year of postdoctoral research at Columbia University in the lab of physicist Harold Urey to learn the technique of mass spectrometry and returned to the Department of Bacteriology at the University of Wisconsin-Madison to incorporate this technique into his postdoctoral research in nitrogen fixation.

Professor Burris was invited to join the faculty of the Department of Biochemistry as an assistant professor in 1944. He became an associate professor of biochemistry in 1946 and professor in 1951. Aside from a Guggenheim Fellowship in 1954 that took Professor Burris to the University of Helsinki and Cambridge University, he spent the remainder of his academic career at Madison. He became professor emeritus in 1984.

Professor Burris pioneered the use of mass spectrometry to study biological nitrogen fixation. He and his lab became the world's arbiter for claims of which organisms were capable of nitrogen fixation. In 1967 Professor Burris and his group published a landmark paper on a simple and inexpensive assay (acetylene reduction) that could be used to measure the amount of nitrogen fixation occurring in a natural ecosystem (and they used the technique to measure nitrogen fixation in Lake Mendota). The development of this simple and inexpensive assay for nitrogen fixation had a profound impact: for the first time it was possible to get estimates of the amount of nitrogen fixed not only in agricultural plots, but in streams, lakes, forests and oceans. Indeed, because of his work, it became possible to evaluate the nitrogen cycle of our planet!

Professor Burris also was a pioneer in the study of nitrogenase — the enzyme that carries out the remarkable reaction of converting nitrogen gas, which is relatively inert, into ammonia. This reaction is at the foundation of almost all natural ecosystems on our planet. Professor Burris and his lab were the first to purify this enzyme, and much of the understanding of how this enzyme operates emanated from his work.

Professor Burris made many important contributions in areas other than nitrogen fixation. For example, he developed a simple test for silo gas that allowed dairy farmers to determine if the atmosphere was safe or toxic, thus saving many lives. Professor Burris was incredibly disciplined and productive; he continued to publish important work into his eighties. One did not have to ask, "Where is Bob Burris?" at 7:30 a.m., Monday through Saturday — he was arriving at his lab in biochemistry.

Professor Burris was a generous and self-sacrificing member of the scientific community. He often shared his space and equipment with and offered much help to young incoming faculty and students. His encouragement and support fostered the rapid development of his students and faculty colleagues. Professor Burris had the highest of scientific and personal standards, but was never judgmental of others. His warm, and sometimes wry, sense of humor was appreciated by all. The imprint and force of his personality did much to fashion the Department of Biochemistry as it made the transition into a new era.

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Professor Burris was a modest man who rode a simple four-speed bicycle from his home in Shorewood Hills to the biochemistry department almost every day until the last two decades of his life. He taught many courses, including “Plant Biochemistry” which he offered every spring semester for 44 years.

To list Professor Burris’ record of service at the department, university, local, national and international levels would exceed the length limit of this memorial. It would be hard to find an important committee on which he had not served. Professor Burris served as chair of the biochemistry department from 1958 to 1970 and as president of the American Society of Plant Physiologists in 1960. His scientific contributions and service have been recognized by many honors (also too numerous to list), including the election to the National Academy of Sciences and the Wisconsin Academy of Sciences, Arts and Letters, the Wolf Award in Agriculture and the National Medal of Science.

Robert Burris is survived by his children Jeanne, Ellen and John, and also by colleagues and former students around the world who will miss the intellect, encouragement and great humanity of this wonderful man.

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